![System Connections logo]

System Connections
Case history

System integration prepares Southern California Edison for future power demands

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Two computer systems vital to the operation and health of Southern California Edison's (SCE) El Segundo Power Plant couldn't communicate with each other. The result was potentially costly. Operators and Machinery Specialists needed the information from both systems to ensure that the plant ran smoothly, and they could not get to it simply. The imminent deregulation of the electric utility industry and the need for maximum utilization of existing generating equipment made the shared database even more important.

In a proactive move, SCE commissioned Bently Nevada's System Integration Services group to interface those two systems, Bently Nevada's Data Manager® 2000 for Windows NT™ System (DM2000) and the Bailey® Infi 90 Distributed Control System (DCS), at their plant in El Segundo, California.

The project objectives were:

1. To enable the Bently Nevada DM2000 system to access the process data resident on the Bailey system. This allows the Machinery Specialist to correlate the process data with the vibration data to facilitate problem diagnosis.

2. To enable the Bailey Operator Interface Stations (OIS) to access the Bently Nevada Data Manager System as remote terminals. This allows the Operators to view all the information critical to their decisions.

Southern California Edison's El Segundo Power Plant
Photos courtesy of Southern California Edison

3. To permit the Machinery Specialist to access the DM2000 and its expanded database from any location, internal or external to the plant.

Getting Data Manager 2000 to access INFI 90 OPEN data

The existing Bailey DCS installation is made up of seven OIS-42 Series control consoles on an Infi 90 Open super loop. One console had recently been upgraded, which enabled it to act as a data server.

The Bently Nevada DM2000 Software, designed to run on a Microsoft Windows NT platform, can bring data into its database via a Dynamic Data Exchange (DDE) server. By adding a separate Bailey client package to the DM2000 computer, we provided a way for the DDE server to access the Bailey INFI 90 OPEN data. This could only happen, however, if the systems could physically talk to each other. The network connection was the next link in the operation.

The network link was accomplished by first physically connecting the systems to the same Ethernet, Wide Area Network (WAN). Then, after configuring the protocols on each system, the Bailey client software on the DM2000 was able to access the real-time process data on the INFI 90 OPEN database. The next step was to activate the DDE Server and configure the DM2000 Software with the appropriate tag names of the data it needed. Process data could now be cor-
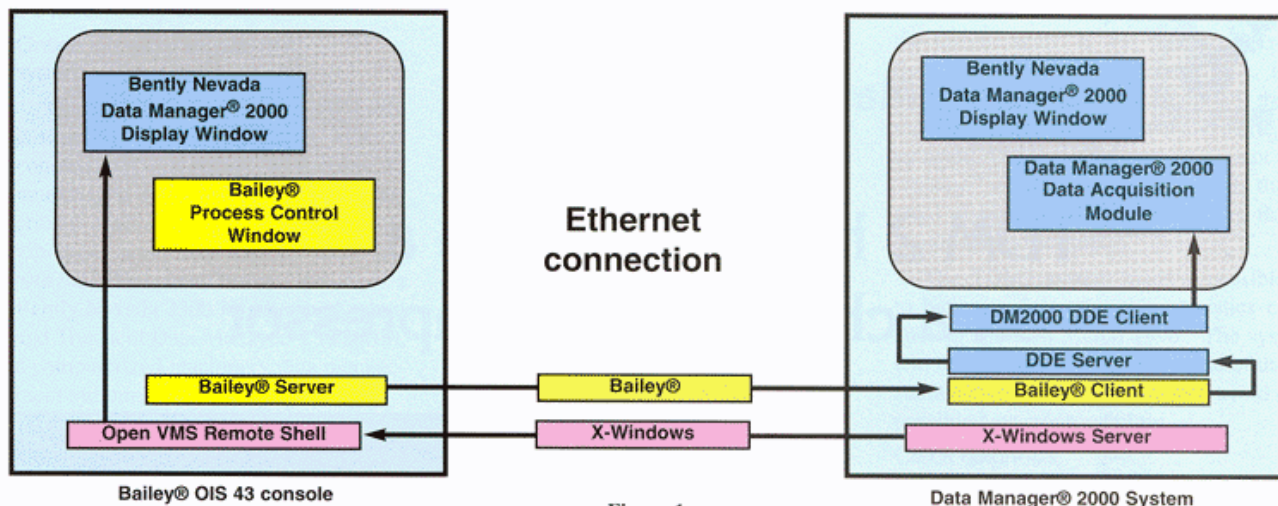
Figure 1
System block diagram.

Bently Nevada
Data Manager® 2000
Display Window

Bailey®
Process Control
Window

Bailey® Server

Open VMS Remote Shell

Bailey® OIS 43 console

Ethernet
connection

Bailey®

X-Windows

Bently Nevada
Data Manager® 2000
Display Window

Data Manager® 2000
Data Acquisition
Module

DM2000 DDE Client

DDE Server

Bailey® Client

X-Windows Server

Data Manager® 2000 System

related with vibration data in the Data Manager® 2000 Display software module. We had now met our first project objective.

At the same time, we met our third project objective and significantly increased the effectiveness and decreased the response time of the Machinery Specialist when he needed to diagnose potential machinery problems. He could now access the DM2000 directly, through the WAN, or by telephone through the Remote Access Services capabilities of Windows NT. Since the Display module can run separately from the Data Acquisition module, the

System integration, using Data Manager® 2000, provides operators at the El Segundo Power Plant with information critical to their decision-making process.

Machinery Specialist could access vibration and process data anytime, from anywhere, with his own computer, running Windows 95.

Data Manager 2000 display on Bailey consoles

Providing Operators with the capability to run the DM2000 display module on their consoles was a more complex problem. The consoles ran a different operating system, Open VMS, that did not support our software or Microsoft's. Open VMS does support X-Windows, however. X-Windows, or simply "X," is a widely-adopted, graphical windowing system which is hardware and software

independent. X could display the screens from the DM2000 Display module. Unfortunately, X is not standard with Microsoft.

However, a third party X-Windows Application Server could be installed to run under Windows NT on the DM2000 computer. When the operator clicked on a standard icon on his Bailey console, it would run a remote shell command and automatically log on to the DM2000 System. Now, the Operator could launch the Data Manager 2000 Display module and, thanks to X, have the exact same graphical user interface that he would have if he were sitting at the DM2000 computer. This completed project objective two, giving the Operator all the information available that is critical to his decision-making process.

Integration Services

Bently Nevada's System Integration Services was instrumental in helping Southern California Edison along the path to achieving maximum utilization of their resources and a more secure business future. If you would like to consider a similar installation using Data Manager 2000 and your process control system, contact your sales representative and ask them for information regarding our System Integration Services. Our staff welcomes the opportunity to discuss your particular needs and to share new ideas. ■